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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,675	06/05/2006	Tadashi Iino	Q78933	6929

23373 7590 10/18/2007

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WASHINGTON, DC 20037

EXAMINER	
NGUYEN, KHANH TUAN	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
10/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/581,675	IINO ET AL.	
	Examiner	Art Unit	
	Khanh T. Nguyen	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The preliminary amendment filed on 06/05/2006 is entered and acknowledged by the Examiner. Claims 1-16 are currently pending in the instant application.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 06/05/2006 has been regarded by Examiner and made of record in the application file.

Drawings

4. The drawing(s) submitted on 06/05/2006 has been regarded by Examiner and made of record in the application file.

Specification

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

DETAILED ACTION

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Specification

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Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-8 and 12-16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hashiguchi et al. (U.S Pub. 2002/0180088 hereinafter, "Hashiguchi").

With respect to claims 1, 4, 8 and 12-16, Hashiguchi teaches an electroconductive resin composition comprising of a carbonaceous powder (i.e. electroconductive powder) dispersed in a resin binder matrix used as fuel cell separator [0012-0013]. The resin binder matrix is a mixture of two or more thermoplastic resins and thermoplastic elastomer [0018]. The resin binder particle diameter is preferably 1 micron or more [0027].

The reference specifically or inherently meets each of the claimed limitations. The reference is anticipatory.

In the alternative that the above disclosure is insufficient to anticipate the above listed claims, it would have nonetheless been obvious to the skilled artisan to produce the claimed composition, as the reference teaches each of the claimed ingredients within the claimed proportions for the same utility.

Regarding claim 2, Hashiguchi teaches the amount of resin binder used is 1-60 parts by weight per 100 parts by weight of carbonaceous powder [0037]. The disclosure reads on the instant claimed limitation of 2-40 mass % of resin binder matrix (i.e. component (A)) and 60-98 mass % of electroconductive carbonaceous powder (i.e. component (B)).

Regarding claim 3, Hashiguchi teaches the particle diameter of the resin binder is almost the same or smaller than the particle diameter of the carbonaceous powder [0027].

Regarding claim 5, Hashiguchi teaches the resin binder matrix is a mixture of two or more thermoplastic resins and thermoplastic elastomer [0018]. Hashiguchi further teaches the thermoplastic resin is preferably 5-50 parts by weight and thermoplastic elastomer is preferably 1-20 parts by weight per 100 parts by weight of the carbonaceous powder [0037].

Regarding claim 6, Hashiguchi teaches component (A) comprises a composition of a polyolefin, and one or plural kinds selected from: hydrogenated styrene-butadiene rubber, styrene-ethylene-butylene- styrene block copolymer, styrene-ethylene-propylene-styrene block copolymer, crystalline olefin-ethylene butylene crystalline olefin block copolymer, styrene-ethylene-butylene- crystalline olefin block copolymer, styrene-iso-styrene block copolymer, styrene-butadiene- styrene block copolymer [0018-0024].

Regarding claim 7, Hashiguchi teaches the resin binder matrix comprising of a mixture of thermoplastic resin such as fluororesins (i.e. polyvinylidene fluoride) and thermosetting resin such as acrylic rubber (i.e. soft acrylic acid resin) [0019 and 0021].

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashiguchi et al. (U.S Pub. 2002/0180088) as applied to the above claims, and further in view of Noguchi et al. (U.S Pub. 2003/0191228, hereinafter, "Noguchi").

Hashiguchi is relied upon as set forth above. With respect to instant claims 9 and 11, Hashiguchi discloses the carbonaceous powder (B) may contain 500 ppm or lower (i.e. 0.0005 or lower mass%) of a transition metal (e.g. boron) [0015]. Hashiguchi also discloses the carbonaceous powder may be expanded graphite which reads on carbon fiber and/or carbon nanotubes [0014]. However Hashiguchi does not discloses component (b) containing a transitional metal such as boron in an amount of 0.05-5 mass % and 0.1-50 mass% of vapor-phase grown carbon fiber (VGCF) and/or carbon nanotubes (CNT).

In the same field of endeavor, Noguchi teaches a conductive curable resin composition comprising of a (A) curable resin blend of (A1) elastomer resin and (A2) a radical reactive resin mixed with (B) carbon material. Noguchi teaches the weight ration of component (A) to component (B) is 70-5:30-95 (Abstract). Noguchi also teaches the graphite powder (i.e. carbon material) may be used alone or it may be added with boron in an amount of 0.05-10 % weight (i.e. mass %) and VGCF or CNT in admixture [0083-0084].

Hashiguchi and Noguchi references are combined because both references teach in analogous art of electroconductive resin composition for fuel cell separator comprising of carbonaceous powder dispersed in a blend of resin binder matrix.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Hashiguchi electroconductive resin composition by increasing the amount of boron in the carbonaceous powder in the range of 0.05-10 % weight and admix VGCF or CNT with graphite powder as taught by Noguchi, in order to improve the conductivity of the conductive resin composition.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh T. Nguyen whose telephone number is (571) 272-8082. The examiner can normally be reached on Monday-Friday 8:00-5:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KTN
10/08/2007

Mark Kopec
Primary Examiner